

## Claims

### I Claim:

1. A sensor system for obtaining the operating temperature of a power amplifier of a radio telephone, said power amplifier having at least one transistor, said sensor system comprising:

a bias supply circuit connected to the power amplifier for supplying a bias current to said power amplifier;

a monitor connected to the power amplifier at the input of the bias supply circuit for sensing a voltage indicative of the voltage drop across said transistor; and

a processor for generating a signal indicative of the operating temperature of said power amplifier in response to the sensed voltage.

2. A sensor system for obtaining the operating temperature of a power amplifier of a radio telephone, said power amplifier having at least one transistor, according to claim 1, wherein a temperature control algorithm causes said processor to adjust the operation of said radio telephone in response to said operating temperature signal.

3. A sensor system for obtaining the operating temperature of a power amplifier of a radio telephone,

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said power amplifier having at least one transistor,  
according to claim 2, wherein the temperature control  
algorithm causes the processor to shut off the radio  
telephone when the operating temperature signal exceeds a  
5 predetermined value.

4. A sensor system for obtaining the operating  
temperature of a power amplifier of a radio telephone,  
said power amplifier having at least one transistor,  
10 according to claim 2, wherein the temperature control  
algorithm causes the processor to adjust the bias control  
supply to the power amplifier in response to said  
operating temperature signal.

15 5. A sensor system for obtaining the operating  
temperature of a power amplifier of a radio telephone,  
said power amplifier having at least one transistor,  
according to claim 2, wherein temperature control  
algorithm causes the processor to be responsive to the  
20 presence of RF signals in the power amplifier to delay  
the sensing of the operating temperature until after the  
RF signal slot has passed.

25 6. A transceiver for a radio telephone for sending and  
receiving radio signals within a communication network,  
said transceiver comprising:

a power amplifier connected as part of said  
transceiver for amplifying said radio signals for  
30 transmission, said amplifier having at least one  
component with a transistor;

a bias supply circuit connected to the power amplifier for supplying a bias current to said power amplifier;

5 a monitor connected to the power amplifier at the input of the bias supply circuit for sensing a voltage indicative of the voltage drop across said transistor; and

10 a processor for generating a signal indicative of the operating temperature of said power amplifier in response to the sensed voltage.

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7. A transceiver for a radio telephone for sending and  
15 receiving radio signals within a communication network, said transceiver, according to claim 6, wherein a temperature control algorithm causes said processor to adjust the operation of said radio telephone in response to said operating temperature signal.

20 8. A transceiver for a radio telephone for sending and receiving radio signals within a communication network, said transceiver, according to claim 7, wherein the temperature control algorithm causes the processor to  
25 shut off the radio telephone when the operating temperature signal exceeds a predetermined value.

9. A transceiver for a radio telephone for sending and receiving radio signals within a communication network,  
30 said transceiver, according to claim 7, wherein the temperature control algorithm causes the processor to adjust the bias control supply to the power amplifier in response to said operating temperature signal.

10. A transceiver for a radio telephone for sending and receiving radio signals within a communication network, said transceiver, according to claim 7, wherein temperature control algorithm causes the processor to be responsive to the presence of RF signals in the power amplifier to delay the sensing of the operating temperature until after the RF signal slot has passed.

11. In a radio telephone having a transceiver for sending and receiving radio signals within a communication network and a power amplifier connected as part of said transceiver for amplifying said radio signals for transmission, said amplifier having at least one component with a transistor, a method of obtaining the operating temperature of the power amplifier comprising the steps of:

supplying a bias current to said power amplifier;

sensing a voltage at the bias current supply input to said power amplifier, indicative of the voltage drop across said transistor;

generating a signal indicative of the operating temperature of said power amplifier in response to the sensed voltage.

12. In a radio telephone having a transceiver for sending and receiving radio signals within a communication network and a power amplifier connected as part of said transceiver for amplifying said radio signals for transmission, said amplifier having at least one component with a transistor, a method of obtaining the operating temperature of the power amplifier,

according to claim 11, further comprising the step of adjusting the operation of said radio telephone in response to said operating temperature signal according to a predetermined algorithm.

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13. In a radio telephone having a transceiver for sending and receiving radio signals within a communication network and a power amplifier connected as part of said transceiver for amplifying said radio signals for transmission, said amplifier having at least one component with a transistor, a method of obtaining the operating temperature of the power amplifier, according to claim 12, wherein said adjustment step comprises shutting off the radio telephone when the operating temperature signal exceeds a predetermined value.

14. In a radio telephone having a transceiver for sending and receiving radio signals within a communication network and a power amplifier connected as part of said transceiver for amplifying said radio signals for transmission, said amplifier having at least one component with a transistor, a method of obtaining the operating temperature of the power amplifier, according to claim 12, wherein said adjustment step comprises adjusting the supply of bias current to the power amplifier in response to said operating temperature signal.

15. In a radio telephone having a transceiver for sending and receiving radio signals within a communication network and a power amplifier connected as part of said transceiver for amplifying said radio signals for transmission, said amplifier having at least one

component with a transistor, a method of obtaining the operating temperature of the power amplifier, according to claim 12, further comprising the step of sequencing said sensing of voltage in response to the presence of RF signals in the power amplifier and delaying said sensing of said voltage until said RF signals have passed.

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